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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## LEAD IN APRIL 1997

Mine production, based upon the net quantity recovered in the smelting of concentrate, increased by about 4% in April and was up by about 7% compared with production in April 1996. Primary and secondary refinery production decreased by 4% and 6%, respectively, in April, but were up by about 6% and 3%, respectively, compared with production in April 1996. Reported consumption increased by 2% in April.

According to *Platt's Metals Week* published quotations, the average North American producer price declined by 2.8% and the average London Metal Exchange (LME) cash price declined by 7.5% in April. The LME cash price rose moderately in early April as a result of a continued tightness in the market associated with purchases of lead to cover the impending settlement of 3-month deliveries, but the price rise was not sustained through the remainder of the month. According to lead traders, although lead stocks had continued to decline, the rate of decline was not sufficient to inspire sustained higher lead prices (Metal Bulletin, 1997a).

National Defense Stockpile cash disposal (sale) of lead in April 1997 was 1,040 metric tons (1,147 short tons). Sale of lead to date in fiscal year 1997 (October 1996 through April 1997) was 9,138 metric tons (10,073 short tons).

The Doe Run Company, St. Louis, MO, recently resumed full operations at its Buick secondary lead smelter in Boss, MO, after repairs to the roof of the facility had been completed and the reverberatory furnace had been relined. A company official estimated the loss of approximately 5,400 metric tons of lead production during the period of closure which began in December 1996, but expected the company to meet its targeted output of 76,200 tons for the fiscal year ending October 31, 1997 (Metal Bulletin, 1997b).

Mexico's Grupo Industrias Peñoles has emerged as the highest bidder in the sale of a 51% interest in the La Oroya smelting and refining complex by Peru's state-owned Empresa Minero del Centro del Peru S.A. (CENTROMIN). According

to CENTROMIN, the funds raised as a result of the sale will be directed toward remedial work on the facility, particularly that which will improve environmentally-related aspects of the operations. Peñoles will have the option to increase its interest in La Oroya up to the limit of full acquisition of the state-owned holdings, although employees at the complex hold preferential rights to acquire a 10% interest in La Oroya. The complex, located 190 kilometers east of Lima, was first opened in the late 1920's and is operated to produce a wide-range of metals. In 1996, production levels for the three principal metals, lead, zinc, and copper, were 94,000 tons, 70,000 tons, and 66,000 tons, respectively, at the La Oroya complex (Mining Journal, 1997).

In electric vehicle (EV) news, India expects to have its first EV available for highway use by November 1997. The Maini-Amerigon Car Co. Pvt. Ltd., a joint venture of the U.S.-based Amerigon Company and the India-based Maini Group, has designed an EV for urban use, with a range of 80 kilometers (50 miles) on a full battery charge, and a top speed of 65 kilometers (40 miles) per hour. The EV, named the Reva, is powered by a pack of eight lead-acid batteries that can be fully charged in about 3 hours from a standard electrical receptacle. Initial production of the Reva is expected to be 6,000 cars per year, expanding to 20,000 cars per year after the first year of operation (Advanced Battery Technology, 1997).

## References Cited

- Advanced Battery Technology, 1997, India's first electric car: Advanced Battery Technology, v. 33, no. 4, p. 14.  
Metal Bulletin, 1997a, Backwardization widens as market firms a little: Metal Bulletin, no. 8167, p. 5.  
———1997b, Doe Run plant back in operation: Metal Bulletin, no. 8167, p. 12.  
Mining Journal, 1997, Peñoles wins La Oroya: Mining Journal, London, v. 328, no. 8426, p. 319.

TABLE 1  
SALIENT LEAD STATISTICS IN THE UNITED STATES 1/

(Metric tons)

|   | 1996           |             | 1997       |         |             |
|---|----------------|-------------|------------|---------|-------------|
|   | Jan. - Dec. p/ | Jan. - Apr. | Mar.       | Apr.    | Jan. - Apr. |
| Production:   |                |             |            |         |             |
| Mine (recoverable)  | 418,000        | 108,000 r/  | 37,200     | 38,600  | 150,000     |
| Primary refinery 2/   | 326,000        | 96,000      | 31,900     | 30,400  | 120,000     |
| Secondary refinery:   |                |             |            |         |             |
| Reported by smelters/refineries                                     | 1,010,000      | 330,000 r/  | 88,900     | 83,400  | 345,000     |
| Estimated   | 16,100         | 5,200 r/    | 1,500      | 1,330   | 5,660       |
| Recovered from copper-base scrap e/                                 | 15,000         | 5,000       | 1,250      | 1,250   | 5,000       |
| Total secondary   | 1,040,000      | 340,000 r/  | 91,700     | 86,000  | 355,000     |
| Stocks, end of period:  |                |             |            |         |             |
| Primary refineries 2/   | XX             | XX          | 21,400     | 19,900  | XX          |
| Secondary smelters and consumers                                    | XX             | XX          | 55,600 r/  | 53,200  | XX          |
| Imports for consumption:  |                |             |            |         |             |
| Ore and concentrates (lead content)                                 | 6,570          | 2,470       | --         | NA      | 4,520 3/    |
| Refined metal   | 268,000        | 84,000      | 22,100     | NA      | 65,100 3/   |
| Consumption:  |                |             |            |         |             |
| Reported  | 1,230,000      | 200,000     | 101,000 r/ | 102,000 | 409,000     |
| Undistributed e/  | 454,000        | 122,000     | 37,300 r/  | 37,900  | 151,000     |
| Total   | 1,680,000      | 322,000     | 138,000 r/ | 140,000 | 560,000     |
| Exports (lead content):   |                |             |            |         |             |
| Ore and concentrates  | 59,700         | 1,750       | 818        | NA      | 5,590 3/    |
| Materials excluding scrap   | 102,000        | 12,600      | 5,030      | NA      | 23,200 3/   |
| Ash and residues  | 19,400         | 1,830       | 1,960      | NA      | 6,020 3/    |
| TEL/TML preparations, based on lead compounds                       | 3,200          | 882         | 276        | NA      | 524 3/      |
| Exports (gross weight): Scrap 4/                                    | 85,300         | 23,100      | 4,410      | NA      | 22,000 3/   |
| Platt's Metals Week North American producer price (cents per pound) | 48.83          | 47.70       | 47.85      | 46.52   | 47.79       |

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Data from American Bureau of Metal Statistics, Inc. (ABMS).

3/ Includes data for January - March only; April data not available at time of publication.

4/ Includes only non-battery scrap data.

TABLE 2  
MONTHLY AVERAGE LEAD PRICES

|                     | North American<br>producer price<br>cents/lb | LME           |              | Sterling<br>exchange rate<br>dollars/£ |
|---------------------|--|---------------|--------------|--|
|                     |  | \$/metric ton | £/metric ton |  |
| 1996:               |  |               |              |  |
| April               | 50.24  | 814.55        | 537.29       | 1.516041                               |
| Average Jan. - Apr. | 47.70  | 777.53        | 509.28       | 1.526959                               |
| Year average        | 48.83  | 773.87        | 495.56       | 1.561616                               |
| 1997:               |  |               |              |  |
| January             | 48.56  | 691.87        | 417.17       | 1.658514                               |
| February            | 48.24  | 659.74        | 405.83       | 1.625632                               |
| March               | 47.85  | 694.09        | 431.23       | 1.609557                               |
| April               | 46.52  | 642.09        | 394.07       | 1.629323                               |
| Average Jan. - Apr. | 47.79  | 671.95        | 412.08       | 1.630757                               |

Source: Platt's Metals Week.

TABLE 3  
MINE PRODUCTION OF RECOVERABLE LEAD IN THE UNITED STATES 1/

(Metric tons)

|                  | 1996 p/    |                | 1997     |        |             |
|------------------|------------|----------------|----------|--------|-------------|
|                  | Year total | Jan. - Apr. r/ | Mar.     | Apr.   | Jan. - Apr. |
| Missouri 2/      | 387,000    | 133,000        | 34,200   | 35,500 | 138,000     |
| Other States 3/  | 30,800     | 11,000         | 2,980 r/ | 3,090  | 12,000      |
| Total            | 418,000    | 144,000        | 37,200   | 38,600 | 150,000     |
| Daily average 4/ | 1,140      | 1,190          | 1,200    | 1,290  | 1,250       |

p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Alaska and Missouri combined to avoid disclosing company proprietary data.

3/ Includes Colorado, Idaho, Montana, and New York.

4/ Based on number of days in period without adjustment for Sundays or holidays.

TABLE 4  
CONSUMPTION OF PURCHASED LEAD-BASE SCRAP IN APRIL 1997 1/

(Metric tons, gross weight)

| Item                               | Stocks<br>Mar. 31,<br>1997 | Net<br>receipts | Consumption | Stocks<br>Apr. 30,<br>1997 |
|------------------------------------|----------------------------|-----------------|-------------|----------------------------|
| Battery-lead                       | 36,000                     | 102,000         | 98,100      | 40,400                     |
| Soft lead                          | W                          | W               | W           | W                          |
| Drosses and residues               | 957                        | 3,890           | 3,680       | 1,160                      |
| Other 2/                           | 930                        | 3,100           | 2,970       | 1,060                      |
| Total                              | 37,900                     | 109,000         | 105,000     | 42,600                     |
| Percent change from preceding mont | --                         | +9.8            | +1.4        | +12.4                      |

W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes solder, common babbitt, antimonial lead, cable covering, type metals, and other lead-base scrap not elsewhere classified.

TABLE 5  
LEAD, TIN, AND ANTIMONY RECOVERED FROM LEAD-BASE  
SCRAP IN APRIL 1997 1/

(Metric tons)

| Product recovered     | Secondary metal content |     |          |
|-----------------------|-------------------------|-----|----------|
|                       | Lead                    | Tin | Antimony |
| Soft and calcium lead | 40,500                  | --  | --       |
| Remelt lead           | W                       | W   | W        |
| Antimonial lead       | 38,000                  | 11  | W        |
| Other 2/              | W                       | W   | --       |
| Total lead-base       | 83,400                  | 34  | 544      |

W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Data are rounded to three significant digits.

2/ Includes cable lead, lead-base babbitt, solder, type metals, and other products.

TABLE 6  
CONSUMPTION OF LEAD IN THE UNITED STATES 1/

(Metric tons, lead content)

| Uses   | 1996         |            | 1997       |         |            |
|--|--------------|------------|------------|---------|------------|
|  | Jan.-Dec. p/ | Jan.- Apr. | Mar.       | Apr.    | Jan.- Apr. |
| Metal products:  |              |            |            |         |            |
| Ammunition-shot and bullets  | 37,800       | 12,900     | 5,920 r/   | 4,560   | 17,300     |
| Brass and bronze-billet and ingots   | 6,060        | 1,550      | 534        | 491     | 2,120      |
| Cable covering-power and communication and<br>calking lead-building construction | 6,720        | 1,240      | 589 r/     | 665     | 2,130      |
| Casting metals   | 1,400        | 341        | 39         | 117     | 243        |
| Pipes, traps, and other extruded products  | (2/)         | 105        | (2/)       | (2/)    | (2/)       |
| Sheet lead   | 13,900       | 2,460      | 658 r/     | 764     | 2,690      |
| Solder   | 5,480        | 1,510      | 536 r/     | 618     | 2,460      |
| Storage batteries, including oxides  | 1,140,000    | 171,000    | 92,000 r/  | 94,500  | 379,000    |
| Terne metal, type metal, and other<br>metal products 3/                          | 3,830        | 1,880      | 213 r/     | 244     | 812        |
| Total metal products   | 1,210,000    | 193,000    | 100,000 r/ | 102,000 | 407,000    |
| Other oxides   | (4/)         | 3,830      | (4/)       | (4/)    | (4/)       |
| Miscellaneous uses   | 13,600       | 3,050      | 448        | 481     | 2,300      |
| Total reported   | 1,230,000    | 200,000    | 101,000 r/ | 102,000 | 409,000    |
| Undistributed consumption e/   | 454,000      | 122,000    | 37,300 r/  | 37,900  | 151,000    |
| Grand total  | 1,680,000    | 322,000    | 138,000 r/ | 140,000 | 560,000    |

e/ Estimated. p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Withheld to avoid disclosing company proprietary data; included with "Sheet lead."

3/ Includes lead consumed in foil, collapsible tubes, annealing, plating, galvanizing, and fishing weights.

4/ Withheld to avoid disclosing company proprietary data; included with "Miscellaneous uses."

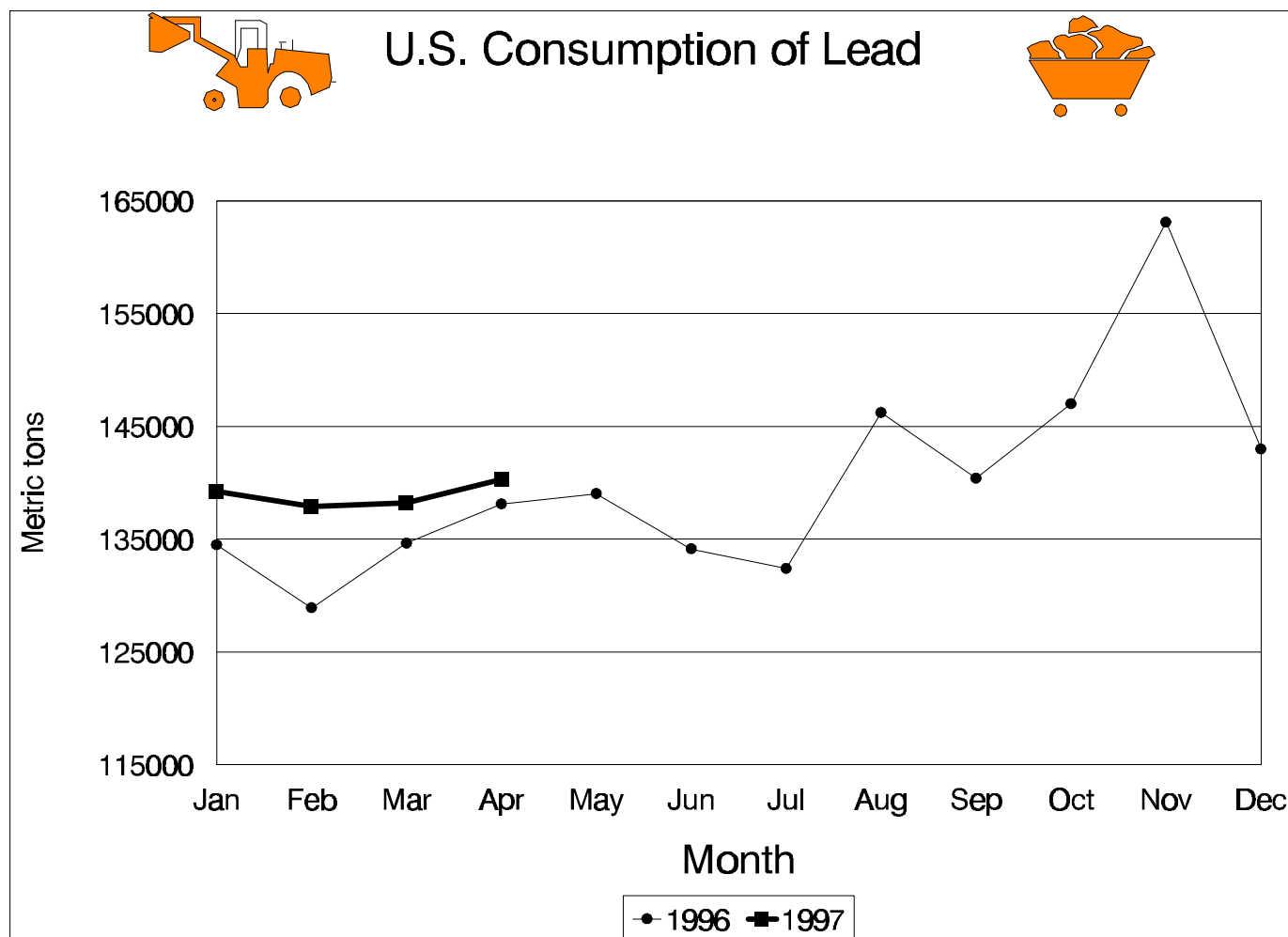


TABLE 7  
CONSUMER AND SECONDARY SMELTER STOCKS, RECEIPTS, AND  
CONSUMPTION OF LEAD IN APRIL 1997 1/

(Metric tons, lead content)

| Type of material  | Stocks<br>Mar. 31,<br>1997 | Net<br>receipts | Consumption | Stocks<br>Apr. 30,<br>1997 |
|-------------------|----------------------------|-----------------|-------------|----------------------------|
| Soft lead         | 19,600                     | 53,100          | 53,900      | 18,800                     |
| Antimonial lead   | 31,100 r/                  | 27,900          | 28,800      | 30,200                     |
| Lead alloys       | W                          | 18,600          | 19,300      | W                          |
| Copper-base scrap | W                          | 431             | 431         | W                          |
| Total             | 55,600 r/                  | 100,000         | 102,000     | 53,200                     |

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 8  
U.S. EXPORTS OF LEAD, BY CLASS 1/

(Metric tons)

|  | 1996       |          | 1997   |       |             |
|--|------------|----------|--------|-------|-------------|
|  | Year total | Mar.     | Feb.   | Mar.  | Jan. - Mar. |
| Lead content:                                    |            |          |        |       |             |
| Ore and concentrates                             | 59,700     | 174      | 3,660  | 818   | 5,590       |
| Materials excluding scrap                        | 102,000    | 8,540    | 9,880  | 5,030 | 23,200      |
| Ash and residues                                 | 19,400     | 1,200    | 1,980  | 1,960 | 6,020       |
| TEL/TML preparations, based<br>on lead compounds | 3,200      | 38       | 102    | 276   | 524         |
| Total  | 184,000    | 9,950    | 15,600 | 8,080 | 35,300      |
| Gross weight: Scrap                              | 85,300 2/  | 6,360 2/ | 7,160  | 4,410 | 22,000      |

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes only non-battery scrap data.

TABLE 9  
U.S. IMPORTS OF LEAD BY TYPE OF MATERIALS AND BY COUNTRY OF ORIGIN 1/

(Metric tons, lead content)

| Country of origin                           | General imports |             |        |        |             | Imports for consumption |             |        |        |             |
|---|-----------------|-------------|--------|--------|-------------|-------------------------|-------------|--------|--------|-------------|
|   | 1996            |             | 1997   |        |             | 1996                    |             | 1997   |        |             |
|   | Year total      | Jan. - Mar. | Feb.   | Mar.   | Jan. - Mar. | Year total              | Jan. - Mar. | Feb.   | Mar.   | Jan. - Mar. |
| Ore, matte, etc.:                           |                 |             |        |        |             |                         |             |        |        |             |
| Bolivia                                     | 326             | 271         | 20     | --     | 30          | --                      | --          | --     | --     | --          |
| Canada                                      | 352,000         | 82,300      | 18,700 | 18,200 | 56,700      | 4,370                   | 1,200       | --     | --     | --          |
| Mexico                                      | 2,890           | 389         | --     | --     | 558         | 2,080                   | 389         | --     | --     | 558         |
| Peru  | 13,400          | 5,730       | 1,210  | 358    | 1,570       | --                      | --          | --     | --     | --          |
| Other                                       | 133             | 122         | --     | --     | 3,960       | 122                     | 122         | --     | --     | 3,960       |
| Total                                       | 369,000         | 88,900      | 19,900 | 18,600 | 62,800      | 6,570                   | 1,710       | --     | --     | 4,520       |
| Base bullion:                               |                 |             |        |        |             |                         |             |        |        |             |
| Mexico                                      | 5               | --          | --     | --     | --          | 5                       | --          | --     | 5      | 5           |
| Total                                       | 5               | --          | --     | --     | --          | 5                       | --          | --     | 5      | 5           |
| Pigs and bars:                              |                 |             |        |        |             |                         |             |        |        |             |
| Belgium                                     | 11              | --          | --     | 10     | 20          | 11                      | --          | --     | 10     | 21          |
| Canada                                      | 192,000         | 46,500      | 16,600 | 14,600 | 49,600      | 192,000                 | 46,500      | 16,600 | 14,600 | 49,700      |
| Germany                                     | 338             | 92          | 16     | 31     | 79          | 338                     | 92          | 16     | 31     | 79          |
| Mexico                                      | 56,900          | 15,100      | 3,530  | 6,520  | 12,700      | 56,900                  | 15,100      | 3,530  | 6,520  | 12,700      |
| Peru  | 17,100          | 5,390       | 405    | 595    | 1,700       | 17,100                  | 5,390       | 405    | 595    | 1,700       |
| United Arab Emirates                        | 160             | 42          | --     | 10     | 21          | 160                     | 42          | --     | 10     | 21          |
| United Kingdom                              | 19              | --          | --     | --     | --          | 19                      | --          | --     | --     | --          |
| Other                                       | 846             | 27          | 201    | 365    | 910         | 846                     | 27          | 201    | 365    | 910         |
| Total                                       | 267,000         | 67,100      | 20,800 | 22,100 | 65,000      | 268,000                 | 67,100      | 20,800 | 22,100 | 65,100      |
| Reclaimed scrap, including ash and residues | 192             | 89          | --     | --     | --          | 192                     | 89          | --     | --     | --          |
| Grand total                                 | 636,000         | 156,000     | 40,700 | 40,700 | 128,000     | 274,000                 | 68,900      | 20,800 | 22,100 | 69,600      |

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.